

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding a melon protein with the activity of a constitutive triple response (CTR) protein, wherein the nucleic acid sequence is selected from the group consisting of:
 - 5 (a) a nucleic acid sequence encoding a protein comprising the amino acid sequence of SEQ ID NO: 2;
 - (b) a nucleic acid sequence that is SEQ ID NO: 1;
 - (c) a nucleic acid sequence that is nucleotides A-3286 of SEQ ID NO:1, wherein 10 A is any one of nucleotides 1440-1444;
 - (d) a nucleic acid sequence that has at least 85% sequence identity to the coding region of (a), (b) or (c)
 - (e) a nucleic acid sequence that will hybridize under moderate to high stringency conditions to the sequence presented as SEQ ID NO:1, or the complement thereof;
 - 15 (f) a fragment of the nucleic acid sequence of (a), (b) or (c) wherein the fragment encodes a protein which has the activity of a constitutive triple response (CTR) protein; and
 - (g) a nucleic acid sequence that is degenerate as a result of the genetic code to the nucleic acid sequence of (a), (b), (c), (d), (e) or (f).
- 20 2. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence has at least 90% sequence identity to the sequence presented as SEQ ID NO:1.
- 25 3. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence is the sequence presented as SEQ ID NO:1.
4. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence has at least 85% sequence identity to nucleotides A-3286 of the 30 sequence presented as SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444.
5. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence is nucleotides A-3286 of the sequence presented as SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444.

6. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence encodes a protein having at least 85% sequence identity to the sequence presented as SEQ ID NO:2.

5 7. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence encodes a protein having the amino acid sequence presented as SEQ ID NO: 2.

10 8. A plant expression vector comprising a nucleic acid sequence of claim 1.

15 9. A plant expression vector comprising the nucleic acid sequence of claim 8, operably linked to control sequences recognized by a plant cell transformed with the vector.

20 10. A transgenic plant cell comprising the plant expression vector of claim 9.

11. A transgenic plant cell comprising a nucleic acid sequence of claim 1.

12. A mature transgenic plant comprising the plant cell of claim 10.

25 13. An isolated protein having the activity of a constitutive triple response (CTR) protein, said protein encoded by a nucleic acid sequence selected from the group consisting of:

(a) the nucleic acid sequence presented as SEQ ID NO: 1;

(b) the nucleic acid sequence presented as nucleotides A-3286 of SEQ ID NO:1,

wherein A is any one of nucleotides 1440-1444;

(c) a nucleic acid sequence that has at least 85% sequence identity to the coding region of (a) or (b);

(d) a fragment of the nucleic acid sequence of (a) or (b) wherein the fragment

30 encodes a protein which has the activity of a constitutive triple response (CTR) protein; and

(e) a nucleic acid sequence that is degenerate as a result of the genetic code to the nucleic acid sequence of (a), (b), (c) or (d).

14. A plant expression vector according to claim 9, further comprising a
selectable marker-encoding nucleic acid sequence.

15. A method for producing a transgenic plant line having a decreased response
5 to ethylene, comprising:
(a) introducing a plant expression vector according to claim 14 into cells of said
plant under conditions effective to yield transformed plant cells;
(b) selecting for transformed plant cells in culturing medium containing a
selection agent; and
10 (c) growing said selected plant cells to produce a transgenic plant line, wherein
the seedlings of said line exhibit a modulated triple response to ethylene.

16. The method according to claim 15, wherein the nucleic acid sequence has
at least 85% sequence identity to the sequence presented as SEQ ID NO:1.

15 17. The method according to claim 15, wherein the nucleic acid sequence is the
sequence presented as SEQ ID NO:1.

20 18. The method according to claim 15, wherein the nucleic acid sequence has
at least 85% sequence identity to nucleotides A-3286 of the sequence presented as
SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444.

25 19. The method according to claim 15, wherein the nucleic acid sequence is
nucleotides A-3286 of the sequence presented as SEQ ID NO:1, wherein A is any one
of nucleotides 1440-1444.

20 20. The method according to claim 15, wherein the nucleic acid sequence
encodes a protein having the amino acid sequence presented as SEQ ID NO: 2.

*(A-15)
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